

Bellwork: 11/18/11

$$f(x) = x - 4$$

$$g(x) = x^2 + 6$$

Find $g(f(x))$

$$g(x-4)$$

$$(x-4)(x-4) + 6$$

$$x^2 - 4x - 4x + 16 + 6$$
$$x^2 - 8x + 22$$

$$\cancel{2x^2} - 2x + 5x^2 - 3$$
$$x \cdot x \cdot x$$

Find $(f \cdot g)(x)$

$$(x-4)(x^2+6)$$

$$x^3 + 6x - 4x^2 - 24$$

$$x^3 - 4x^2 + 6x - 24$$

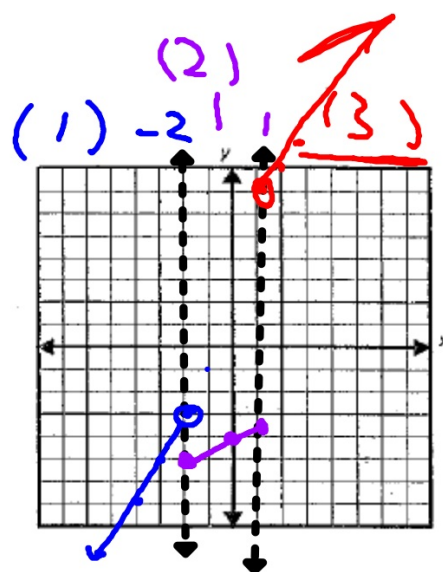
Graph the following functions

$$1. f(x) = \begin{cases} 2x+1 & \text{if } x < -2 \\ -\frac{1}{2}x-4 & \text{if } -2 \leq x \leq 1 \\ x+6 & \text{if } x > 1 \end{cases}$$

$$2x+1$$

$$-\frac{1}{2}x-4$$

$$x+6$$



$$2. f(x) = \begin{cases} \frac{3}{5}x + 1 & \text{if } x \leq -5 \\ 4 & \text{if } -5 < x \leq 2 \\ 2x - 2 & \text{if } 2 < x \leq 4 \\ 6 & \text{if } x > 4 \end{cases}$$

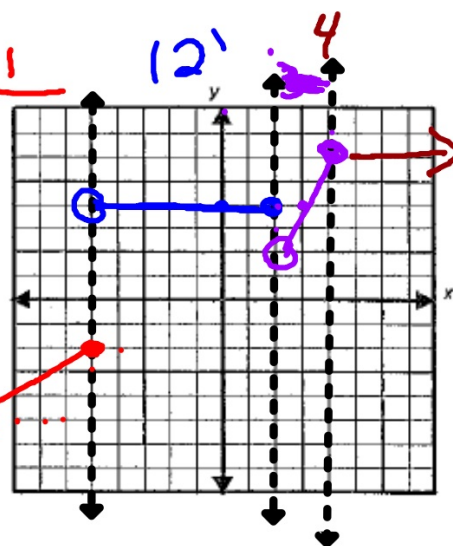
(1) (2) (3)

$$\frac{3}{5}x + 1$$

$$y = 4$$

$$y = 2x - 2$$

$$y = 6$$



$$y = -3x + 5$$

$$y = 5$$

3. $f(x) = \begin{cases} -3x+5 & \text{if } x \leq -1 \\ 5 & \text{if } -1 < x < 4 \\ \frac{1}{2}x - 3 & \text{if } 4 \leq x \leq 6 \end{cases}$

